

Abstract

An MRAM has a plurality of bit lines 33, a reference bit line 34, a plurality of memory cells 21, a plurality of reference cells 22 and a read section 1. The plurality of bit lines 33 and the reference bit line 34 extend in a direction of Y. The plurality of memory cells 21 are provided along the bit lines 33 and the plurality of reference cells 22 are provided along the reference bit line 34. The memory cell 21 and reference cell 22 have a tunneling magnetic resistance 27 and a reference tunneling magnetic resistance 27r, each of which has a spontaneous magnetization whose direction is reversed in accordance with a data stored therein. The read section 1 has a first resistance section 11 which contains a ninth terminal connected with a bit line 33s and a tenth terminal connected with the first power supply, a second resistance section 12 which contains an eleventh terminal connected with the reference bit line 34 and a twelfth terminal connected with the first power supply, and a comparing section 13 which compares a sense voltage V_s on the ninth terminal and a reference voltage V_{ref} of the eleventh terminal.